

Determination of High School Students' Physical Activities, Stress Levels and Coping Capabilities

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Abstract: This descriptive research was carried out to determine high school students' physical activities, stress levels and coping capabilities. The research was conducted between 1-31 May 2014 and the research sample involves 400 students of three high schools. Personal Information Form, International Physical Activity Questionnaire and the Ways of Coping Inventory were used for data collection. Data collection tools were applied on children in classroom environment. SPSS 16.0 software was used for data evaluation. Percentage distribution, t test and ANOVA test were used in the analysis of obtained data. In the research, 66.3% of the students were found to have low and medium physical activity levels. A statistically significant relationship was found among students on a gender, age and grade based evaluation, in which female and 14 year old students displayed lower physical activity, and 12th grade students exhibited higher physical activity levels. No statistically significant relationship was found between the students' physical activity levels and their stress-coping capabilities. A statistically significant difference was found between the students' gender, age, grade, school success, economical status, smoking status and physical activity-based coping scale scores. In the most active stage of their lives, high school students exhibited low physical activity and stress-coping levels. Initiatives should be taken for increasing the physical activity levels of students and improving their ways of coping with stress, particularly for female students and those receiving 9th grade education.

Keywords: Physical activity, High school students, Coping with stress

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I. Introduction

Adolescence period is the most active and energetic stage of individuals in which they are intensely exposed to developmental stressors. However, the sedentary lifestyle of modern age and spending vast amounts of time on television, computer and video games have significant adverse effects on activity levels of teenagers in this age group, thus setting the ground for future serious health issues.¹⁻⁴ According to "National Nutrition and Health Survey 2010" data, 56.2% of 12-14 year old adolescents and 57.8% of 15-18 year old adolescents make no physical activity.⁵ Adolescents that attend physical and sports activities in earlier ages also participate in continuous physical exercises in adulthood, which contributes to prevention of several chronic diseases.^{6,7} Also, engaging in physical and sports activities in adolescence period yields a higher life quality and self-esteem, contributes to socializing and coping with developmental stressors and helps in dealing with mental issues such as depression and anxiety at significantly lower levels.⁶⁻¹⁰ For such reasons participation of students in physical and sports activities in their school life holds critical importance. Identification of the physical activities-habits of high school students will be useful in providing them with proper physical habits, better health status, and helping them to deal more effectively with developmental stressors to have a higher life quality. There is limited number of studies in the related literature on physical activity levels of high school students, however no study was found on physical activity and stress-coping levels of students which play a critical role in maintaining the mental and physical health. In this respect, this research was performed to address the physical activity and stress-coping levels of high school students.

II. Method

This descriptive research was conducted with 400 students receiving education in three high schools as of 1-31 May 2014. Personal Information Form, International Physical Activity Questionnaire and The Ways of Coping Inventory were used for data collection.

Personal Information Form: This form consists of 17 questions about the students' age, gender, grade, family's monthly income, chronic disease status, school success and smoking status.

International Physical Activity Questionnaire (IPAQ): This questionnaire was developed by Craig et al. (2003)¹¹ to determine the physical activity levels of individuals in 15-65 age group. The validity and reliability research of IPAQ in Turkey was conducted by Öztürk (2005)¹². The evaluation is based on the assumption that each activity is performed for at least 10 minutes at a time. Scores are acquired in terms of “MET-min/week” by multiplying minute, day and Metabolic Equivalent Task (MET) values. Physical activity levels are classified as physical inactivity (<600 MET- min/week), low physical activity (<600 MET- min/week), and sufficient physical activity (healthy) (>3000 MET-min/week).¹¹

Ways of Coping Inventory (WCI): This inventory was developed by Lazarus and Folkman (1984)¹³, and its validity and reliability in Turkey was verified with a standardization study.^{14,15} WCI is a situation oriented likert-type scale involving 30 items. These scale consists of 5 subscales namely, self-confidence approach (8,10,14,16,20,23,26), helpless approach (3,7,11,19,22,25,27,28), submissive approach (5,13,15,17, 21, 24), optimistic approach (2,4,6,12,18), and seeking social support approach. Self-confidence, optimistic, seeking social support approaches of the scale constitute positive coping methods, and helpless, submissive approaches constitute negative coping methods.¹⁴⁻¹⁶

Formal approval of Provincial Directorate of National Education and oral consent of participating students were received prior to the research. Data collection tools were used in classroom environment. Research data were evaluated using SPSS 16.0 software. Percentage distribution, t and ANOVA tests were used in data analysis.

II. Findings

Table 1. Descriptive features of the students

Defining Features		Number	%
Age	14 age	12	3.0
	15 age	112	28.0
	16 age	108	27.0
	17age	136	34.0
	18age	32	8.0
Gender	Female	228	57.0
	Male	172	43.0
Grade	9.grade	145	36.2
	10.grade	103	25.8
	11.grade	149	37.2
	12.grade	3	0.8
School success	Good	93	23.2
	Moderate	279	69.8
	Poor	28	7.0
Financial status	Poor	16	4.0
	Medium	341	85.2
	Good	43	10.8
Smoking status	Never smoked	288	72.0
	Current smoker	81	20.2
	Given up	31	7.8
Physical activity level	Low level	95	23.7
	Intermediate	170	42.5
	High level	135	33.8
Educational status of mother	Literate	26	6.5
	Primary school	202	50.5
	Middle School	95	23.8
	High school	72	18.0
	University	5	1.2
Educational status of father	Literate	10	2.5
	Primary school	122	30.5
	Middle School	90	22.5
	High school	160	40.0
	University	18	4.5

Identifying information of the students are given in Table 1. 34% of the students are 17 years old, 57% are female and 37.2% are 11th grade students. 69.8% of the students have medium school success levels, 85.2% have medium family income level, and 20.2% are smokers. 42.5% of the students have medium physical activity level, mothers of 50.5% are primary school and fathers of 40% are high school graduates.

Table 2. Physical activity mean scores of the students based on some of their descriptive features.

Tanıttıcı Özellikler	Number	%	Physical activity SEM	X ±	F, p
Age					
14 age	12	3	1864.8 ± 569.65		F=1.150 p= 0.33
15 age	112	28	2243.1 ± 199.70		
16 age	108	27	2726.9 ± 215.61		
17 age	136	34	2306.3 ± 346.90		
18 age	32	8	2371.9 ± 108.48		
Gender					
Female	228	57	2180.7 ± 139.44		t=2.036 p= 0.04
Male	172	43	2625.2 ± 170.26		
Grade					
9. grade	145	36.2	2042.3 ± 173.13		F=10.858 p =0.00
10. grade	103	25.8	3362.3 ± 229.70		
11. grade	149	37.2	2044.8 ± 158.58		
12. grade	3	0.8	542.0 ± 346.86		
School success					
Good	93	23.2	2175.9 ± 230.22		F= 1.298 p=0.27
Moderate	279	69.8	2381.6 ± 124.93		
Poor	28	7.0	2926.2 ± 516.96		
Financial status					
Poor	16	4.0	2091.6 ± 659.14		F=1.786 p= 0.16
Medium	341	85.2	2454.8 ± 115.61		
Good	43	10.8	1818.9 ± 339.14		
Smoking status					
Never smoked	288	72.0	2340.9 ± 129.84		F = 1.061 p=0.34
Current smoker	81	20.2	2626.9 ± 252.08		
Given up	31	7.8	1993.1 ± 260.32		

Physical activity mean scores of the students on the basis of some of their descriptive features are given in Table 2. A statistically significant difference was found between their gender and grade with physical activity mean scores ($p < 0.05$). Female students and 12th grade students were found to have lower physical activity scores. No statistically significant difference was found between the students' physical activity scores based on their age, school success, financial status and smoking status ($p > 0.05$).

Table 3. Students' stress-coping mean scores based on some of their descriptive attributes.

Descriptive attributes		Self-confidenc e approach X±SD	Optimistic approach X±SD	Helpless X±SD	Submissive approach X±SD	Seeking social support X±SD	TOTAL X±SD
Age	14 age	3.10 ±.47	2.90 ±.67	2.65±.63	2.31±.51	2.81±.48	2.75±.33
	15 age	3.05±.52	2.96±.64	2.46±.56	2.12±.61	2.82±.54	2.68±.35
	16 age	2.94±.54	2.74±.52	2.53±.54	2.22±.62	2.87±.54	2.66±.34
	17age	2.80±.65	2.67±.69	2.50±.61	2.16±.55	2.69±.64	2.57±.37
	18age	2.66±.89	2.51±.82	2.10±.62	1.97±.66	2.35±.80	2.32±.60
		F=4.168 p=.003	F=3.940 p=.004	F=1.393 p=.236	F=4.512 p=.001	F=5.428 p=.000	F=6.846 p=.000
Gender	Female	2.95±.61	2.77±.62	2.51±.59	2.08±.55	2.82±.60	2.62±.39
	Male	2.85±.62	2.75±.70	2.42±.58	2.26±.64	2.66±.61	2.59±.40
		t=1.560 p=.120	t=.202 p=.840	t=1.455 p=.146	t=-2.966 p=.003	t=2.499 p=.013	t=.865 p=.388
Grade	9. grade	2.99±.55	2.90±.66	2.53±.56	2.20±.60	2.82±.53	2.69±.34
	10. grade	2.99±.54	2.76±.55	2.44±.55	2.07±.58	2.86±.53	2.62±.36
	11. grade	2.79±.68	2.65±.69	2.45±.61	2.18±.61	2.62±.69	2.54±.42
	12. grade	2.00±1.37	2.13±1.13	1.50±.57	1.66±.76	1.91±1.18	1.84±1.0
		F=4.168 p=.003	F=4.512 p=.001	F=3.940 p=.004	F=1.393 p=.236	F=5.428 p=.000	F=6.846 p=.000
School success	Good	2.91±.61	2.84±.59	2.40±.54	2.17±.64	2.68±.58	2.60±.34
	Moderate	2.92±.61	2.76±.66	2.48±.59	2.12±.57	2.76±.60	2.61±.39
	Poor	2.77±.71	2.54±.79	2.61±.65	2.41±.67	2.83±.77	2.63±.56
		F=5.649 p=.001	F=4.574 p=.004	F=3.416 p=.017	F=1.663 p=.174	F=6.067 p=.000	F=7.717 p=.000
Financial status	Poor	2.80±.78	2.97±1.06	2.46±.57	2.05±.59	2.82±.75	2.62±.55
	Medium	2.94±.59	2.79±.63	2.47±.58	2.16±.58	2.77±.58	2.63±.37
	Good	2.70±.70	2.50±.62	2.42±.63	2.18±.72	2.55±.75	2.47±.44
		F=3.092 p=.047	F=4.387 p=.013	F=.171 p=.843	F=.284 p=.753	F=2.695 p=.069	F=2.993 p=0.05
Smoking status	Never	2.97±.57	2.81±.59	2.47±.56	2.10±.54	2.78±.58	2.63±.35
	Current	2.67±.73	2.60±.85	2.41±.69	2.32±.73	2.60±.67	2.52±.51

	Given up	2.88±.55 F=3.089 p=.047	2.73±.67 F=5.740 p=.003	2.60±.55 F=.948 p=.389	2.23±.63 F=.980 p=.376	2.90±.64 F=2.193 p=.113	2.67±.38 F=2.604 p=.075
physical activity levels		2.77±.71 2.96±.61 2.93±.53 F=3.089 p=.047	2.57±.72 2.84±.69 2.80±.54 F=5.740 p=.003	2.41±.66 2.51±.59 2.46±.53 F=.948 p=.389	2.08±.63 2.18±.63 2.17±.52 F=.980 p=.376	2.70±.70 2.82±.58 2.69±.57 F=2.193 p=.113	2.51±.47 2.66±.38 2.61±.32 F=5.004 p=.007

The participating students' stress-coping mean scores based on some of their descriptive attributes are given in Table 3. A statistically significant difference was detected between the coping scale scores of students based on their age, school success, financial status, smoking status and physical activity levels ($p < 0.05$). Coping subscale scores and total coping scores of 18 year olds except helpless approach, and 12 years olds except submissive approach were lower than others. Female students received lower submissive approach scores and higher seeking social support scores under coping scale. Students with lower school success and physical activity level as well as smoking students exhibited lower self-confidence and optimistic approach, and higher submissive approach scores, whereas non-smokers exhibited lower submissive approach scores. Students with higher financial status, 18 year olds, and those with lower physical activity levels received lower total coping scores. No significant difference was found between the students' coping scores and physical activity levels ($r = .021$, $p = 0.682$).

III. Discussion

In this study, carried out to determine high school students' physical activity and coping levels, 66.3% of the students were found to have low or medium physical activity levels. Majority of students exhibited inadequate physical activity levels. Previous studies carried out with high school students also indicate that students have low levels of physical activity.^{5,17} Such low levels of physical activity is mainly attributed to habits such as sparing less time for physical exercises and spending more time on television, computer and games as a result of modern lifestyle.

In the research, female students were found to have low physical activity levels as compared to male students. The results of previous related studies also show that physical activity levels vary depending on gender. Several studies indicate that males are more energetic individuals than females.¹⁷⁻²¹ According to Aktas et al. (2016)¹⁸, female students display lower physical activity behaviors than male students, and Ölüçü et al. (2015)¹⁷ reported that, 64.3% of male students and 75.1% of female students are either inactive or have inadequate activity levels, and that, male students have higher physical activity levels than female students. Martínez-Gómez et al. (2009)¹⁹ studied with adolescents in 13-16 age group, and reported that, female adolescents exhibited higher physical activity levels than adolescents males. Tavazar et al. (2014)²⁰ reported that, female students live a more sedentary life and attend sportive activities at lower rates, and according to Vaizoglu et al. (2004)²¹ 35.7% of female students and 16.2% of male students have a sedentary life-style. Female students' exhibiting lower physical activity levels can be attributed to their tendency for spending more time at house environment with their family and friend groups, thus spending relatively less time with physical activities. In this research, 12th grade students were found to have lower physical activity levels. Conducted researches reveal that physical activity levels of individuals significantly decrease with advancing age.^{22,23} Findings of the present research are consistent with literature results.

According to the research results, total stress-coping scores and seeking social support scores of 18 year olds and 12th grade students are lower than others. As a result of dealing with numerous stressors such as transition from adolescent period to teenager-adult period and preparation for university examination, 18 year olds and 12th grade students feel an increasing urge for being recognized and assisted. According to Demircioglu (2014)²⁴ 12th grade students prefer problem solving strategies more than 9th grade students, and 9th grade students resort to seeking support strategies at higher rates as compared to 12th grade students. Aysan (1988)²⁵ reported that, high school students seek less social support with advancing age, and according to Bastemur (2011)²⁶ the tendency for seeking social support declines with increasing age. The findings of the present research are consistent with these research results.

Among the participating students, female students received lower submissive approach scores and higher seeking social support scores in coping scale. In a research conducted with high school students in Düzce province, female students were found to use planned problem solving and social support approaches at higher rates²⁷; according to Muris et al. (2001)²⁸ female students in 13-19 age group used ineffective coping strategies to higher extents; and according to Demircioglu (2014)²⁴ female students used the imagining strategy among coping strategies at higher levels as compared to male students. In the research, female students were found to be more apt to use seeking social support approach among problem-oriented coping strategies. As a result of being close to graduation from high school, and feeling the need for choosing a profession, 12th grade students are more apt to think over such issues and make attempts to make right decisions. Such difference can be

attributed to 9th grade students' being free of such driving factors to solve problems. Students with low school success, smoking habit and low physical activity levels received lower confident and optimistic approach scores and higher submissive approach scores. Self-confident approach and optimistic approach involve problem-oriented coping strategies in coping with stress. Low school success may have negative influence on coping capabilities of students since it results with lower self-esteem and the feeling of incompetence. According to the results of conducted researches, smoking behavior emerges as a coping mechanism against stress and smokers undergo higher stress levels than non-smokers.^{29,30} Non-smoking students received lower submissive approach scores. Non-smoking students were also found to have better problem-solving skills compared to smoking students with a statistically significant difference.^{31,32} (Yıldırım et al. 2011; Abdollahi and Abu Talib 2014). Yıldırım et al. (2011)³¹ reported that, smokers and alcohol users displayed lower problem solving skill scores as compared to non-users without a statistically significant difference. In a research carried out with private high school students, female and smoking students were reported to display higher levels of submissive approach in stress-coping scale. Adolescents that tend to use emotion-oriented strategies such as helpless approach and submissive approach are reported to be under higher depression and substance-abuse risk as compared to those that exhibit problem-solving oriented coping strategies such as self-confident approach and optimistic approach.³³⁻³⁷

In the research, students with better financial status received lower total coping scores. According to the findings of a study carried out in with high school students in Düzce province, a significant difference was found in favor of high financial status for planned problem solving and social support approaches among stress-coping strategies.²⁷ In the same study, coping approaches such as fatalism and believing in supernatural powers were observed at higher rates by adolescents in lower grades. In the same research, students with lower physical activity levels received lower coping scores and no significant difference was found between coping and physical activity level scores. As an activity for protecting and improving health, physical exercise contributes to formation and maintenance of a healthy bone, muscle and joint structure, improving well-being and reducing stress.³⁸

IV. Conclusion

According to the findings of the present research, 66.3% of the participants were found to have medium and low physical activity levels. A statistically significant difference was found between the students' gender-age and grade based physical activity levels, females and 14 year olds received lower physical activity scores, and 12th grade students received higher physical activity scores. There is no statistically significant relationship between the students' coping and physical activity level scores. Statistically significant difference was detected between the students' coping scale scores based on their age, gender, grade, school success level, financial status, smoking status and physical activity level. In their most energetic period, high school students exhibit low levels of physical activity and coping capabilities. Initiatives should be taken as to increasing physical activity levels and improving stress-coping capabilities of students, particularly females and 9th grade students.

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